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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,772	01/08/2002	Michael E. Webber	S00-229/US	5323

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EXAMINER

COCKS, JOSIAH C

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 09/30/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/042,772

Applicant(s)

WEBBER ET AL.

Examiner

Josiah C. Cocks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 & 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Applicant's claim for domestic priority under 35 U.S.C. § 119(e) to provisional application 60/260,535 is acknowledged.

### *Drawings*

2. The drawings filed with the application on 1/8/02 are accepted by the examiner.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 9, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by R.M. Mhlacea, et al., "Diode-laser absorption measurements of CO<sub>2</sub> near 2.0 μm at elevated temperatures" published December 20, 1998 in Vol. 37 No. 36 of APPLIED OPTICS (hereinafter "the *Mhlacea et al.* publication") (cited by applicant in IDS filed 1/8/02 and entered as paper #5).

The *Mhlacea et al.* publication discloses a system and method for non-intrusively measuring carbon dioxide in a high temperature gas flow containing water vapor as described in applicant's claims 1-4, 9, and 13-16 including a plurality of laser sensors with at least one sensor

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operated at a selective wavelength near 2  $\mu\text{m}$  (see p. 8341, col. 2). The *Mihlacea et al.* publication proposes that *in situ* measurements may be taken of the transition lines of the  $\text{CO}_2$  transition band including the R (56), R (38), and R (50) lines at elevated temperatures in excess of 400K (see p. 8345, cols. 1 and 2). The type of laser identified in the *Mihlacea et al.* publication is an external cavity diode laser (ECDL) (see p. 8342, col. 1).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 5-8, 10-12, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over The *Mihlacea et al.* publication in view of Brand et al. (US # 6,064,488).

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The *Mihlacea et al.* publication discloses all the limitations of claims 5-8, 10-12, and 17-20 except possibly for the use of a process chamber or sampling line for taking measurements, one of the types of lasers identified in claims 6, 7, 18, and 19, or one of the interrogation techniques identified in claims 8 and 20.

*Brand et al.* teaches a gas measuring method and system in the same field of endeavor as the *Mihlacea et al.* publication wherein *Brand et al.* includes the use of a variety of lasers used in gas spectroscopy including the distributed feedback diode laser and vertical cavity surface emitting laser, and Fabry-Perot laser identified by applicant (see *Brand et al.*, col. 2, lines 39-50) and described as the equivalent of the external cavity diode laser (ECDL) identified by the *Mihlacea et al.* publication. *Brand et al.* also teaches the use of a sampling cavity (16) and a frequency-modulation spectroscopy interrogation technique (see col. 1, lines 18-20). *Brand et al.* further teaches the use of optical fibers, a collimating lens, and a diffraction grating (see col. 2, lines 45-62).

Therefore, in regard to claims 5-8, 10-12, and 17-20, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the system and method of the *Mihlacea et al.* publication to incorporate the types of lasers, techniques, and optical structure taught by *Brand et al.* as the use of each of these structures in *in situ* measurement of gas concentration contribute to producing a more accurate measurement (see *Brand et al.*, col. 2, lines 5-24).

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***Conclusion***


8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Cooper et al.*, *Butler*, *Nelson et al.*, *Lord et al.*, and EP 0 766 080 are included to further show the state of the art concerning gas composition measurements systems and methods.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Josiah Cocks whose telephone number is (703) 305-0450. The examiner can normally be reached on weekdays from 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett, can be reached at (703) 308-0101. The fax phone numbers for this Group are (703) 308-7764 for regular communications and (703) 305-3463 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

jcc  
September 23, 2003

  
JOSIAH COCKS  
PATENT EXAMINER  
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